

## CLAIMS

## ART 34 AMDT

1. A production strain of rhPBGD obtained by use of the DNA fragment, EcoR I - Hind III linear fragment as shown in SEQ ID NO 2 to obtain hemC-deletion in the host JM105-H-  
5 R6-C by homologous gene replacement and transforming the resulting strain with the expression plasmid pExp1-M2-BB as shown in SEQ ID NO:1 to yield the final production strain PBGD which is free from production of PBGD of non human origin (Accession No 12915).
- 10 2. A method for the preparation of rhPBGD by a method comprising
- a) introducing, into a suitable vector, a nucleic acid fragment which includes a nucleic acid sequence encoding PBGD;
  - b) transforming the production strain according to claim 1 with the vector;
  - 15 c) culturing the transformed host cell under conditions facilitating expression of the nucleic acid sequence;
  - d) recovering the expression product from the culture.
3. A method according to claim 2 further comprising a fermentation step.
- 20 4. A method according to claim 2 or 3 further comprising a purification step.
5. A method according to claim 4 wherein the purification is performed with a His-Tag (rhPBGD-His).
- 25 6. A method according to any of claims 2-5, wherein the PBGD is recombinant human PBGD based on any of Seq. ID NO 3 (clone PBGD 1.1) and Seq. ID NO 4 (non-erythro PBGD 1.1.1).
- 30 7. An expression plasmid pExp1-M2-BB as shown in Seq. ID NO 1 for use in the expression of rhPBGD in E. coli.
8. A DNA fragment, EcoR I - Hind III linear fragment as shown in Seq. ID NO 2, capable of obtaining hemC-deletion in a host.

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~~9. A rhPBGD produced by the method of any of claims 2-6 and able to lower the levels of~~  
PBG and ALA in mice during an acute attack of porphyria in a transgenic mouse model  
where the PBGD gene has partially been knocked-out.

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10. A rhPBGD having a stability of at least 6 weeks at 20°C, such as for at least 7 weeks,  
preferably for 8 weeks.

11. A rhPBGD having a stability resulting in a decrease in activity of less than 10% per  
10 month, such as less than 5%.